

Adam Tupper

www.adamtupper.nz

Personal Statement

I am a hardworking and inquisitive graduate student, with a passion for learning and a desire to help others achieve. Long term, my aspirations are to participate in cutting-edge research to realise my goal of making a meaningful impact in helping people around the world through technology. I am a collaborative person, who enjoys working with others and firmly believe that the best way to improve yourself is to share your experiences and help others.

Work Experience

LHP Partners Ltd., Machine Learning Engineer

Aug 2020 – Dec 2020

- I developed a wide range of machine learning models for various applications, including natural language processing/understanding and computer vision, for a wide variety of clients.
- I was involved in the full lifecycle of developing machine learning models, from research and development to deployment and monitoring.

University of Canterbury, Computer Science Tutor

Feb 2019 – Jun 2020

- I tutor third-year undergraduate computer science courses in artificial intelligence and computer graphics.
- I received an average 4.6 / 5.0 rating by students in our tutor surveys across all categories (enthusiasm, encouraging independent thinking, ability to explain, clarity and conciseness of explanations and effectiveness).

Xero, Data Innovation Intern

Nov 2018 – Feb 2019

- Worked as part of a team of data scientists and data engineers to develop and integrate machine learning (incl. deep learning) and statistical modelling into current and future software products.
- The primary focus of my work was graph theory and network science for identifying attributes, relative importance and motif analysis of add-ons within the Xero and competitor ecosystems.
- Utilised deep learning for matching company and add-on names etc. across ecosystems and the web.
- Outcomes of my work were showcased at Xerocon 2019.

Orion Health, Intern Software Engineer

Nov 2016 – Feb 2018

- Worked as part of a team on building a software platform used to operationalize machine learning at “big data” scale within a global healthcare product. The platform allows data scientists to deploy, execute and maintain trained models and algorithms for inference production within the software system.
- The platform supports popular machine learning technologies such as Scikit-Learn, Spark ML, TensorFlow, and Keras as well as big data technologies including Hadoop HDFS and Kafka.
- Implemented a parallelised and containerised ML pipeline using Docker within a Mesos/Marathon cluster environment.
- Developed a Domain Specific Language (DSL) to isolate the data applications from the underlying technical infrastructure.
- Implemented distributed tracing throughout the ML pipeline to enhance debugging and monitoring when in production.

Education

Université Laval

Jan 2021 – Present

- Pursuing a PhD in ML/AI with a focus on biologically-inspired ideas for improving multitask learning and representation learning with deep neural networks.

University of Canterbury

Jul 2018 – August 2020

- Completed a Master of Science in computer science. Overall GPA: 9.0.
- Thesis topic: evolutionary reinforcement learning for vision-based general video game playing.
- Notable coursework: computer vision, machine learning, computer graphics, statistical consulting, Bayesian inference.

Feb 2015 – Nov 2017

- Completed a Bachelor of Science with a double major in computer science and statistics. Overall GPA: 8.79.

- Notable coursework: Data mining, machine learning, artificial intelligence, algorithms, time series analysis, statistical inference, software engineering, relational databases, statistical modelling, embedded systems, computer graphics, HCI.

Ashburton College

2010 – 2014

- NCEA Levels 1 and 2 Endorsed with Excellence; NCEA Level 3 Endorsed with Merit.

Skills

- Statistical modelling, machine learning and deep learning in Python and R.
- Developing software using Python, Java, C, C#, SQL, HTML, CSS and JavaScript (incl. Node.js).
- Experience with PyTorch, NetworkX, OpenCV, AWS (developer tools and compute), Apache Spark and Hadoop HDFS.

Publications

- Adam Tupper and Kourosh Neshatian. 2020. Evaluating Learned State Representations for Atari. *2020 35th International Conference on Image and Vision Computing New Zealand (IVCNZ)*. <https://doi.org/10.1109/IVCNZ51579.2020.9290609>
- Adam Tupper. 2020. Evolutionary Reinforcement Learning for Vision-Based General Video Game Playing. Master's thesis. *University of Canterbury*. <http://dx.doi.org/10.26021/10198>
- Adam Tupper and Kourosh Neshatian. 2020. Evolving Neural Network Agents to Play Atari Games with Compact State Representations. *In Proceedings of the 2020 Genetic and Evolutionary Computation Conference Companion (GECCO '20)*. <https://doi.org/10.1145/3377929.3390072>
- Adam Tupper and Richard Green. 2019. Pedestrian Proximity Detection using RGB-D Data. *2019 International Conference on Image and Vision Computing New Zealand (IVCNZ)*, Dunedin. <https://doi.org/10.1109/IVCNZ48456.2019.8961013>

Additional Experience and Awards

- **Microsoft Student Partner** (2016 - 2018): Ran workshops for the Microsoft Imagine Cup: High School competition at schools in the Christchurch area. Responsible for helping to run and organise the Microsoft Student Accelerator Program and the Microsoft Imagine Cup competition throughout New Zealand.
- **CompSoc Committee** (2016): Second Year Representative on the CompSoc Committee. CompSoc is a student-run social/academic club at the University of Canterbury aiming to support students studying Computer Science and Software Engineering courses.
- **Head Boy** (2014): Head Boy at Ashburton College, led new student volunteering initiatives and the Student Executive responsible for student welfare, sporting and social events.
- **Microsoft Student Accelerator Program** (2015): Completed the programme and gained an internship at the Christchurch City Council.

Volunteer Work

- **Golden Key Primary School Mentoring** (2015): Volunteered as an academic mentor for two students at Ilam Primary School to help them learn programming through Scratch.
- **Rotary Associate, Bishopdale-Burnside Rotary Club** (2015): Volunteered throughout the year at various club events.